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EXAMINER	
BLEVINS, JERRY M	

ART UNIT	PAPER NUMBER
2883	

DATE MAILED: 04/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/796,955	MANDERSCHEID, RICHARD M.	
	Examiner	Art Unit	
	Jerry Martin Blevins	2883	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 January 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,5-11,13-16,19-27 and 34-38* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *16 and 19-21* is/are allowed.

6)☒ Claim(s) *1-3,5,7-11,13-15,22-27 and 34-36* is/are rejected.

7)☐ Claim(s) *6,37 and 38* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

BRIAN HEALY
PRIMARY EXAMINER
ART UNIT 2883

DETAILED ACTION

Response to Arguments

Applicant's arguments, see page 7, filed January 20, 2006, with respect to claims 6, 16, and 19-21 have been fully considered and are persuasive. The rejection of claims 6, 16, and 19-21 has been withdrawn.

Applicant's arguments with respect to claims 1-3, 5, 7-11, 13-15, and 22-27 have been considered but are moot in view of the new ground(s) of rejection.

Namely, applicants argue that the previously cited prior art fails to teach the newly submitted claim limitations found in amended independent claims 1, 7, 22 and 25: "said emitting laser, first photodiode, and second photodiode are axially aligned with an emission axis of said emitting laser". Applicants also argue that the previously cited prior art fails to teach the newly submitted claim limitations found in amended dependent claims 3, 9, 24, and 27: "said first photodiode is axially aligned between said emitting laser and said second photodiode". However, newly applied prior art reference, US Patent to Goossen, number 6,271,943, teaches these newly submitted claim limitations as described below in the following claim rejections.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 34 is rejected under 35 U.S.C. 102(b) as being anticipated by US Patent to Goossen, number 6,271,943.

Regarding claim 34, Goossen teaches an optic device for transceiving optic signals along an axis (Figure 4) comprising a laser (either 412 or 414) selectively emitting a first optical signal along an axis of emission, a first photodiode (photodiode 30, Figure 1, part of photodetector 2, Figures 1 and 4) detecting a second optical signal, a second photodetector (photodiode 20, Figure 1, part of photodetector 2, Figures 1 and 4), detecting a third optical signal, wherein the laser, the first photodiode, and the second photodiode are axially aligned with the emission axis (Figure 4), and the first photodiode being located between the laser and the second photodiode (Figures 1 and 4).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goossen in view of US Patent to Buchter, number 6,536,957.

Regarding claim 1, Goossen teaches an optic triplexer (Figure 4) comprising an emitting laser (either 412 or 414) a first photodiode (photodiode 30, Figure 1, part of photodetector 2, Figures 1 and 4), a second photodetector (photodiode 20, Figure 1, part of photodetector 2, Figures 1 and 4), wherein the first photodiode and the second photodiode are monolithically integrated on a substrate (Figure 1, element 10), the laser, the first photodiode, and the second photodiode are axially aligned with the emission axis of the emitting laser (Figure 4). Goossen does not teach a thin film filter located between the emitting laser and one of the first and the second photodiodes. Buchter teaches an optic triplexer (Figure 3, and see, for example, column 4, lines 23-40) comprising an emitting laser (143b), a first photodiode and a second photodiode (included in photodiode array 11, see Figure 5 elements 113a, 113b), wherein the first and the second photodiode are monolithically integrated on a substrate (101); and a thin film filter (123) between the emitting laser and one of the first and second photodiodes. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the optic triplexer of Goossen with the thin film filter of Buchter. The motivation would have been to filter out undesired wavelengths from reaching the photodetectors.

Regarding claim 2, Goossen in view of Buchter teaches the limitations of the base claim 1. Goossen does not teach that the emitting laser is monolithically integrated on the substrate. Buchter teaches that the emitting laser is monolithically integrated on the substrate (Figure 3). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the optic triplexer of Goossen such

that the emitting laser is monolithically integrated on the substrate, as taught by Buchter. The motivation would have been to save space.

Regarding claim 3, Goossen in view of Buchter teaches the limitations of the base claim 1. Goossen also teaches that the first photodiode is axially aligned between the emitting laser and the second photodiode (Figures 1 and 4).

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Goossen in view of Buchter as applied to claim 1 above, and further in view of US Pre Grant Publication to Bartur et al., number 2003/0147601.

Regarding claim 5, Goossen in view of Buchter teaches the limitations of the base claim 1. Goossen does not teach a thin film filter located between the first and the second photodiode. Bartur teaches a triplexer comprising a thin film filter (Figure 2C, element 213 and paragraph 27) located between a first photodiode (Figure 2B, element 130 and paragraphs 10 and 27) and a second photodiode (Figure 2B, element 210 and paragraphs 10 and 27). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the optical triplexer of Goossen such that a thin film filter is located between the first and the second photodiodes, as taught by Bartur. The motivation would have been to insure that wavelengths outside the desired wavelength are filtered out (Bartur paragraph 27).

Claims 7-9 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bartur in view of Buchter and Goossen.

Regarding claims 7 and 9, Bartur teaches an optic triplexer (Figure 2B and paragraph 10) comprising an emitting laser (Figure 2B, element 224 and paragraphs 10 and 27) for transmitting a 1310 nm optical signal (paragraph 27), a first photodiode (Figure 2B, element 130 and paragraphs 10 and 27) for receiving a 1490 nm optical signal (paragraph 27), and a second photodiode (Figure 2B, element 210 and paragraphs 10 and 27) for receiving a 1550 nm signal (paragraph 27), wherein the first and second photodiodes are monolithically integrated on a substrate (Figure 2D, element 212 and paragraph 10). Bartur does not teach a 1310 +/-10nm reflective thin film filter located between the emitting laser and the first photodiode. Buchter teaches a 1310 +/-10nm reflective thin film filter (Figure 3, element 123 and column 5, lines 14-30) located between an emitting laser (141) and a photodiode (111). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the optic triplexer of Bartur with the filter of Buchter, located between the emitting laser and the first photodiode. The motivation would have been to insure that wavelengths outside the desired wavelength are filtered out (Bartur paragraph 27). Bartur also does not teach that the emitting laser, first photodiode, and second photodiode are axially aligned with the emission axis of the emitting laser, wherein the first photodiode is axially aligned between the emitting laser and the second photodiode. Goossen teaches an optic triplexer (Figure 4) wherein a laser (412 or 414), a first and a second photodiode (2, shown as photodiodes 20 and 30 in Figure 1) are axially aligned with the emission axis of the laser, wherein the first photodiode is axially aligned between the emitting laser and the second photodiode. It would have been obvious to one of

ordinary skill in the art at the time of the invention to modify the optic triplexer of Bartur such that the laser and first and second photodiodes are axially aligned with the emission axis of the laser, as taught by Goossen. The motivation would have been to increase the intensity of light which reaches the photodiodes.

Regarding claim 8, Bartur in view of Buchter and Goossen teaches the limitations of the base claim 7. Bartur also teaches that the emitting laser is monolithically integrated on the substrate (Figure 2D, element 212 and paragraph 10).

Regarding claim 13, Bartur in view of Buchter and Goossen teaches the limitations of the base claim 7. Bartur also teaches that the triplexer also comprises a 1490 nm thin film filter (Figure 2C, element 213 and paragraph 27) located between the first photodiode and the second photodiode.

Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bartur in view of Buchter and Goossen as applied to claim 7 above, and further in view of US Patent to Eden et al., number 4,110,778.

Regarding claims 10 and 11, Bartur in view of Buchter and Goossen teaches the limitations of base claim 7. Bartur does not teach that the first and second photodiodes have cutoff wavelengths dependent on the relative concentrations of dopants in the substrate. Eden teaches a photodiode with a cutoff wavelength dependent on the dopant concentration in the substrate (column 1, lines 56-68). It would have been obvious to one of ordinary skill in the art at the time of the invention to include the cutoff wavelength characteristics taught by Eden in the photodiodes of Bartur. The motivation

would have been to save costs, since this cutoff wavelength characteristic is in line with industry standards.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bartur in view of Buchter and Goossen as applied to claim 7 above, and further in view of US Pre Grant Publication to Hwang et al., number 2002/0163952.

Regarding claim 14, Bartur in view of Buchter and Goossen teaches the limitations of the base claim 7. Bartur does not teach that the laser is a vertical cavity surface emitting laser (VCSEL). Hwang teaches a multiplexing system (paragraph 20) incorporating VCSELs (paragraph 23). It would have been obvious to one of ordinary skill in the art at the time of the invention to use a VCSEL laser, as taught by Huang, in the optic triplexer of Bartur. The motivation would have been to obtain any of the following parameters: a low threshold current, a single longitudinal mode, a circular output beam profile, and a smaller divergence angle (Hwang paragraph 12).

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bartur in view of Buchter and Goossen as applied to claim 7 above, and further in view of US Pre Grant Publication to Kuramata, number 2003/0113053.

Regarding claim 15, Bartur in view of Buchter and Goossen teaches the limitations of the base claim 7. Bartur does not teach that the substrate is an InGaAs substrate. Kuramata teaches that InGaAs substrates are widely used as the substrates of semiconductor lasers (paragraph 177). It would have been obvious to one of

ordinary skill in the art at the time of the invention to use an InGaAs substrate, as taught by Kuramata, as the substrate in the triplexer of Bartur. The motivation would have been to produce the triplexer economically.

Claims 22-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bartur in view of Applicant's Admitted Prior Art (AAPA) in view of Goossen.

Regarding claims 22-27, Bartur teaches an optic triplexer which includes an emitting laser capable of transmitting a 1310 nm signal, a first photodiode capable of receiving a 1490 nm signal, and a second photodiode capable of receiving a 1550 nm signal, wherein the laser and photodiodes are each monolithically integrated on a substrate. Bartur does not teach that the triplexer is incorporated by an optical network terminal (ONT) which, along with an optical line terminal (OLT), is part of a passive optical network. AAPA teaches a passive optical network (Figure 1) comprising an OLT (element 106) and an ONT (element 110) that incorporates an optic triplexer (element 102). It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the passive optical network of AAPA in the implementation of the triplexer of Bartur. The motivation would have been to use the triplexer to deliver useful information, such as voice, video, and data, which would not be possible if the triplexer were not part of such a network. Bartur also does not teach that the emitting laser, first photodiode, and second photodiode are axially aligned with the emission axis of the emitting laser, wherein the first photodiode is axially aligned between the emitting laser and the second photodiode. Goossen teaches an optic triplexer (Figure 4) wherein a

laser (412 or 414), a first and a second photodiode (2, shown as photodiodes 20 and 30 in Figure 1) are axially aligned with the emission axis of the laser, wherein the first photodiode is axially aligned between the emitting laser and the second photodiode. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the optic triplexer of Bartur such that the laser and first and second photodiodes are axially aligned with the emission axis of the laser, as taught by Goossen. The motivation would have been to increase the intensity of light which reaches the photodiodes.

Claims 35 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goossen as applied to claim 34 above, and further in view of Bartur and Buchter.

Regarding claims 35 and 36, Goossen teaches the limitations of the base claim 34. Goossen does not teach a first filter located between the laser and the first photodiode and a second filter located between the first photodiode and the second photodiode. Buchter teaches an optic triplexer (Figure 3, and see, for example, column 4, lines 23-40) comprising an emitting laser (143b), a first photodiode and a second photodiode (included in photodiode array 11, see Figure 5 elements 113a, 113b), and a thin film filter (123) between the emitting laser and the first photodiodes, wherein the filter is capable of filtering the first optic signal. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the optic triplexer of Goossen with the thin film filter of Buchter. The motivation would have been to filter out undesired wavelengths from reaching the photodetectors. Bartur teaches a triplexer

comprising a thin film filter (Figure 2C, element 213 and paragraph 27) located between a first photodiode (Figure 2B, element 130 and paragraphs 10 and 27) and a second photodiode (Figure 2B, element 210 and paragraphs 10 and 27), wherein the filter is capable of filtering the second optical signal. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the optical triplexer of Goossen such that a thin film filter is located between the first and the second photodiodes, as taught by Bartur. The motivation would have been to insure that wavelengths outside the desired wavelength are filtered out (Bartur paragraph 27). With regards to the claim language that the filters are adapted for filtering the first and second optical signals, it has been held that the recitation that an element is "adapted" to perform a function is not a positive limitation but only requires the ability to so perform. It does not constitute a limitation in any patentable sense. In re Hutchinson, 69 USPQ 138.

Allowable Subject Matter

Claims 6, 37, and 38 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 16 and 19-21are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claims 6, 37, and 38, the prior art, taken individually or in combination, fails to disclose or render obvious that the packaging is arranged such that optical signals received by the transistor outline can first impinge on the emitting laser before impinging on one of the first and the second photodiodes.

Regarding claims 16 and 19-21, the prior art, taken individually or in combination, fails to disclose or render obvious the step of forming a thin film filter on top of the another photodiode before placing/monolithically forming the emitting laser.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jerry Martin Blevins whose telephone number is 571-272-8581. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on 571-272-2415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JMB

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